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the customary answers, "*Don*," "*Hunger?*" "*Haben haben*," "*Kuchen*," etc., of which however only two out of sixteen answers were intelligible. Of 168 answers preserved on phonograph records, 71 per cent. were disyllabic and of the monosyllabic noises 68 per cent. were given when a considerable pause had elapsed between the last answer and this question. The "answers" were really incorrect fully as often as otherwise. Disinterested hearers could seldom distinguish his "*Hunger*" from his "*Haben*," nor his "*Ruhe*" from his "*Kuchen*," etc. It was as easy for others to perceive some of these same sounds as "*Engelhopf*" or "*Hallelujah*"; "*Huhn*" or "*Honig*." Here it seems to the author we have a case quite parallel with our common interpretation of the night-swallow's call as "Whip-poor-Will" when in fact the sounds are nearly "Pfif-ah-rih"; and with the common German interpretation of their *Steinkanz's* "*Kuwitt*" or "*Kuwiff*" as "*Komm mit*," thus making him in popular superstition the messenger of death. But for a strong and uninhibited tendency thus to "apperceive" them, neither these calls nor the "words" of Don would be taken as other than meaningless noises.

On psychological grounds, Mr. Pfungst concludes, the explanation is comparatively simple; the uncritical do not make the effort to discriminate between what is actually given in perception and what is merely associated imagery, which otherwise gives to the perception a meaning wholly unwarranted; and they habitually ignore the important part which suggestion always plays in ordinary situations.

Accepting this explanation as satisfactory we may expect the majority of animal lovers to continue to read their own mental processes into the behavior of their pets. Nor need we be astonished if even scientists of a certain class continue at intervals to proclaim that they have completely demonstrated the presence in lower animals of "intelligent imitation" and of other extremely complicated mental processes—inferred from the results of brief and lamentably superficial tests, and published as proven facts without further reflection.

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FOURTH LIST OF GENERIC NAMES FOR THE "OFFICIAL LIST OF ZOOLOGICAL NAMES," PROVIDED FOR BY THE GRAZ CONGRESS

15.[1] The following generic names of Diptera are proposed for *inclusion* in the "Official List of Generic Names." The species mentioned are the correct types, according to Coquillett, 1910.

Anopheles Meig., 1818, 10, type *bifurcatus*.
Anthomyia Meig., 1803, 281, type *Musca pluvialis*.
Chrysops Meig., 1800, 23, type *cæcutiens*.
Corethra Meig., 1803, 260, type *Tipula culiciformis*.
Culex Linn., 1758a, 602, type *pipiens*.
Cuterebra Clark, 1815, 70 type *Œstrus cuniculi*.
Gasterophilus Leach, 1817, 2, type *Œstrus intestinalis* (cf. *Œ. equi*).
Hæmatobia St. Farg. & Serv., 1828, 499, type *Conops irritans*.
Hippelates Loew, 1863, 36, type *plebejus*.
Hippobosca Linn., 1758a, 607, type *equina*.
Hypoderma Latr., 1818, 272, type *Œstrus bovis*.
Lucilia Desv., 1830, 452, type *Musca cæsar*.
Musca Linn., 1758a, 589, type *domestica*.
Muscina Desv., 1830, 406, type *stabulans*.
Nycteribia Latr., 1796, 176, type *Pediculus vespertilionis*.
Œstrus Linn., 1758a, 584, type *ovis*.
Ophyra Desv., 1830, 516, type *Anthomyia leucostoma*.
Phora Latr., 1796, 169, type *Musca aterrima*.
Piophila Fall., 1810, 20, type *Musca casei*.
Psorophora Desv., 1827, 412, type *Culex ciliatus*.
Sarcophaga Meig., 1826, 14, type *Musca carnaria*.
Stegomyia Theob., 1901, 234, type *Culex calopus*.
Stomoxys Geoffr., 1762, 538, type *Conops calcitrans*.
Tabanus Linn., 1758a, 601, type *bovinus*.
Tipula Linn., 1758a, 585, type *oleracea*.

16. The following generic names of Diptera are proposed for *exclusion* from the "Official List," on the ground that they are absolute homonyms and preoccupied.

Acanthina Wiedem., 1830, not Fisch., 1806.
Allocotus Loew, 1872, not Mayr, 1864.
Ammobates Stann., 1831, not Latr., 1809.

[1] Paragraphs are numbered continuously with the earlier lists.

Anepsius Loew, 1857, not LeConte, 1852.
Anoplomerus Rond., 1856, not Latr., 1844.
Archilestes Schin., 1866, not Selys, 1862.
Ascia Meig., 1822, not Scop., 1777.
Aspilota Loew, 1873, not Fœrst., 1862.
Asthenia Westw., 1842, not Hübn., 1816.
Astoma Lioy, 1864, not Oken, 1815.
Atomaria Bigot, 1854, not Steph., 1830.
Atrichia Loew, 1866, not Schrank, 1803.
Blacodes Loew, 1874, not Dej., 1859.
Blax Loew, 1872, not Thom., 1860.
Brachygaster Meig., 1826, not Leach, 1817.
Callopistria Loew, 1873, not Hübn., 1816.
Centor Loew, 1866, not Schönh., 1847.
Ceria Fabr., 1794, not Scop., 1763.
Chauna Loew, 1847, not Illig., 1811.
Chrysonotus Loew, 1855, not Swains., 1837.
Clytia Desv., 1830, not Lam., 1812.
Coprina Zetters., 1837, not Desv., 1830.
Coquillettia Willist., 1896, not Uhler, 1890.
Cyrtosoma Brauer & Bergenst., 1891, not Walk., 1829.
Dendrophila Lioy, 1864, not Swains., 1837.
Diabasis Macq., 1834, not Hoffmanns., 1819.
Diphysa Macq., 1838, not Blainv., 1834.
Discocephala Macq., 1838, not Lap., 1832.
Empheria Winn., 1863, not Hag., 1856.
Enicopus Walk., 1833, not Steph., 1830.
Erichsonia Desv., 1863, not Westw., 1849.
Eriogaster Macq., 1838, not Germ., 1811.
Eristicus Loew, 1848, not Wesm., 1844.
Eudora Desv., 1863, not Less., 1809.
Eumetopia Macq., 1847, not Westw., 1837.
Eumetopia Brauer & Bergenst., 1889, not Westw., 1837.
Euphoria Desv., 1863, not Burm., 1842.
Eurycephala Röd., 1881, not Lap., 1833.
Exocheila Rond., 1868, not Rond., 1857.
Fabricia Meig., 1838, not Blainv., 1828.
Fallenia Meig., 1838, not Meig., 1820.
Grassia Theob., 1902, not Fisch, 1885.
Halithea Hal., 1838, not Savig., 1817.
Helobia St. Farg., & Serv., 1828, not Steph., 1827.
Heteroneura Fall., 1823, not Fall., 1810.
Heterostoma Rond., 1856, not Hart., 1843.
Himantostoma Loew, 1863, not Ag., 1862.
Hydrochus Fall., 1823, not Germ., 1817.
Hyria Desv., 1863, not Lam., 1819.
Icaria Schin., 1868, not Sauss., 1853.
Idiotypa Loew, 1873, not Fœrst., 1856.
Isoglossa Coq., 1895, not Casey, 1893.
Itamus Loew, 1849, not Schm.-Goeb., 1846.
Latreillia Desv., 1830, not Roux, 1827.
Laverania Theob., 1902, not Grassi & Fel., 1890.
Leptochilus Loew, 1872, not Sauss., 1852.
Leptopus Fall., 1823, not Latr., 1809.
Leptopus Hal., 1831, not Latr., 1809.
Lissa Meig., 1826, not Leach, 1815.
Lophonotus Macq., 1838, not Steph., 1829.
Macrochira Zetters., 1838, not Meig., 1803.
Macrurus Lioy, 1864, not Bonap., 1841.
Meckelia Desv., 1830, not Leuck., 1828.
Microcera Zetters., 1838, not Meig., 1803.
Mochtherus Loew, 1849, not Schm.-Goeb., 1846.
Mycetina Rond., 1856, not Muls., 1846.
Myobia Desv., 1830, not Heyd., 1826.
Odontocera Macq., 1835, not Serv., 1833.
Okenia Zetters., 1838, not Leuck., 1826.
Omalocephala Macq., 1843, not Spin., 1839.
Pales Desv., 1830, not Meig., 1800.
Panoplites Theob., 1900, not Gould, 1853.
Phoneus Macq., 1838, not Kaup, 1829.
Plagiocera Macq., 1842, not Klug, 1834.
Plagiotoma Loew, 1873, not Clap. & Lachm., 1858.
Plectropus Hal., 1831, not Kirby, 1826.
Polydonta Macq., 1850, not Fisch., 1807.
Psilopus Meig., 1824, not Poli, 1795.
Pygostolus Loew, 1866, not Hal., 1833.
Rhopalomyia Willist., 1895, not Rübsaam., 1892.
Rœselia Desv., 1830, not Hübn., 1816.
Rondania Jænn., 1867, not Desv., 1850.
Sargus Fabr., 1798, not Walb, 1792.
Sicus Latr., 1796, not Scop., 1763.
Stenomacra Loew, 1873, not Stal, 1870.
Stictocephala Loew, 1873, not Stal, 1869.
Subula Meig., 1820, not Schum., 1817.
Tetrachæta Brauer & Bergenst., 1894, not Ehrenb., 1844.
Tetrachæta Stein, 1898, not Ehrenb., 1844.
Trichoptera Lioy, 1864, not Meig., 1803.
Triodonta Willist., 1885, not Bory, 1824.
Trupanea Macq., 1838, not Schrank, 1795.
Wulpia Brauer & Bergenst., 1893, not Bigot, 1886.

17. These names are published herewith for the information of all persons interested. They will be forwarded by July 1, 1912, to the International Commission on Zoological Nomenclature, the Commission on Nomenclature of the International Entomological Congress and to several entomological committees and societies.

18. A vote will be called on these names at the next meeting of the International Commission on Zoological Nomenclature, in the summer of 1913, and any objection to the proposed action should be filed with the under-

signed, and stating ground for the objection, not later than May 1, 1913.

C. W. STILES.
Secretary International Commission on Zoological Nomenclature

SPECIAL ARTICLES

ŒNOTHERA NANELLA, HEALTHY AND DISEASED

IN my cultures of the evening primrose of Lamarck, the pure and self-fertilized seed yearly produces a certain percentage of mutants, among them dwarfs, *Œnothera nanella*, the number of which usually amounts to about 1 per cent. of the whole crop. Of late, these dwarfs have been the subject of some discussion, since Zeylstra discovered the presence of a bacterium in their tissues and showed that some of their characters, formerly considered as specific marks, are, in reality, abnormalities caused by this parasite.[1] From this, some authors have erroneously concluded that the dwarfs are no real mutants, but only diseased individuals of the original type.[2]

Zeylstra, however, had pointed out that, under favorable conditions, the sideshoots of the dwarfs may become healthy and lose their abnormal characters; but their height remains the same as in the diseased stems. Hence we may assume that, under still more favorable conditions, the main stems themselves might grow up healthy, while still retaining the dwarfish stature.

About half a century ago, Liebig pointed out that nitrogenous manure is apt to increase the sensitiveness of plants to diseases, whilst phosphate of calcium is one of the best means to diminish this predisposition. Laurent found the same to be true for such diseases as are caused by those common bacteria of the soil, which, under normal conditions, are harmless, but may injure the cultures, whenever the manure is too rich in nitrogenous substances. He studied *Bacillus fluorescens putidus* and *B. coli communis*, both of which destroy the cellwalls by means of their enzymes, even before they themselves reach the cells. The bacterium of *Œnothera nanella* is of a wholly different type, since it is found within the living cells and changes their growth without killing them. Zeylstra provisionally placed it in the group of *Micrococcus*.

From these data it is probable that healthy *O. nanella* might be obtained by giving them less nitrogen and more phosphate of calcium. Unfortunately, however, the nitrogen manure acts as the strongest stimulant, under our climate, to induce them to become annual, and for many reasons it is most desirable to have cultures of annual generations. It is, therefore, necessary to determine the amount of nitrogen and phosphate of calcium which will induce a sufficiently large percentage to become annual, but will not essentially heighten their liability to become diseased.

In the summer of 1911, I made some provisional experiments which show that, by this method, there may be produced almost wholly healthy specimens with the normal stature of the dwarfs. In the first place, I found that every part of the stem, every single leaf and flower, may be normal or diseased, in response to external influences. In the young rosettes of rootleaves the first leaves were formerly always twisted; then came long-stalked normal ones and, after these, the really abnormal leaves with broadened and shortened bases, which often killed the terminal bud before it could make a stem. By giving a large amount of phosphate of calcium, and as little nitrogen as possible, every one of the rootleaves could be grown healthy, with a stalk and a narrow wedge-shaped base. The same was the case with the leaves of the stem, and even with the flowers. The number of the abnormal ones could be brought down to a very few, thereby giving the whole plant the appearance of a healthy condition. All transitions between diseased and normal dwarfs were to be seen in these cultures.

Moreover, I have won beautiful healthy dwarfs by means of a cross from which the other parent was eliminated after the rule of the sesquireciprocal crosses.[3] I pollinated a

[1] H. H. Zeylstra, "Fzn. *Œnothera nanella* de Vries, eine krankhafte Pflanzenart," *Biolog. Centralblatt*, 1911, Bd. XXXI., pp. 129–139.

[2] Sammelreferat by G. Tischler, *Zeitschr. f. ind. Abst.*, 1911, Bd. V., p. 327.

[3] "Ueber doppeltreciproke Bastarde," *Biol. Centralbl.*, 1911, T. 31, pp. 97–104.